

(U) What is claimed is:

1 (a) 1. In a semiactive radar guidance system for a
2 guided missile, such system including a heterodyne
3 receiver wherein the frequency of a first local
4 oscillator is required to be rendered coherent with
5 the frequency of echo signals from a target being
6 tracked by a frequency control signal from automatic
7 frequency control circuitry, such circuitry being
8 susceptible to vibration during flight to assume
9 one of two stable conditions, the first of such
10 conditions being one in which the frequency control
11 signal has the proper amplitude and polarity to
12 maintain coherency and the second of such conditions
13 being one in which the polarity of the frequency
14 control signal has an incorrect polarity, the
15 improvement comprising:

16 (a) first means, responsive to vibration-induced
17 changes in the automatic frequency control
18 circuitry from one stable condition to the
19 other, for generating a control signal
20 indicative of such change; and

21 (b) second means, responsive to the control
22 signal, for correcting the polarity of the
23 frequency control signal.

1 ~~(c)~~ 2. The improvement as in claim 1 wherein the
2 first means is a differentiator responsive to change
3 in the polarity of the frequency control signal.

1 ~~(c)~~ 3. The improvement as in claim 2 wherein the
2 second means comprises a phase lock loop incorporating
3 the combination of a synchronous detector having a
4 first and a second input and an output terminal, a
5 voltage controlled oscillator and a narrow band
6 summing amplifier, a signal representative of a
7 target being tracked being applied to the first input
8 terminal, the output signal of the voltage controlled
9 oscillator being connected to the second input
10 terminal, the summing amplifier being disposed in
11 circuit between the output terminal and the voltage
12 controlled oscillator with the control signal applied
13 to a second input terminal of such amplifier.

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